WE CLAIM:

1. An optical spectrometer, in particular spectrum analyzer, comprising:

at least two coupling apertures with different mode field diameters,

means for dispersing the light beams each exiting the coupling apertures along a dispersion axis, and

at least two decoupling apertures on which the dispersed light beams are each imaged and whose mode field diameters each correspond to the mode field diameters of the associated coupling apertures.

2. The optical spectrometer according to claim 1, wherein the coupling and/or decoupling apertures are formed by the fiber ends of optical fibers.

3. The optical spectrometer according to claim 1, wherein the coupling and decoupling apertures with the smaller mode field diameter are each formed by the fiber end of a SingleMode standard fiber.

4. The optical spectrometer according to claim 1, wherein the coupling and/or decoupling apertures with the larger mode field diameter are formed each by the fiber end of an optical fiber having a widened core diameter at the fiber end compared to a SingleMode standard fiber, in particular by the fiber end of a TEC fiber.

5. The optical spectrometer according to claim 1, wherein the coupling and/or decoupling apertures with the larger mode field diameter are each formed by a spherical or aspherical fiber end of an optical fiber.

6. The optical spectrometer according to claim 1, wherein the coupling and/or decoupling apertures with the larger mode field diameter are each formed by an optical fiber end provided with a lens element.

7. The optical spectrometer according to claim 1, further comprising one single optical input which can be connected to one of the coupling apertures via an optical switch.

8. The optical spectrometer according to claim 1, wherein each coupling aperture is associated with its own optical input.

9. The optical spectrometer according to claim 1, wherein at least the decoupling aperture with the larger mode field diameter is associated with an optical output.

10. The optical spectrometer according to claim 1, wherein the decoupling aperture with the smaller mode field diameter is associated with a detector.

11. The optical spectrometer according to claim 2, wherein:

the coupling and decoupling apertures with the smaller mode field diameter are each formed by the fiber end of a SingleMode standard fiber,

the coupling and/or decoupling apertures with the larger mode field diameter are formed each by the fiber end of an optical fiber having a widened core diameter at the fiber end compared to a SingleMode standard fiber, in particular by the fiber end of a TEC fiber,

the coupling and/or decoupling apertures with the larger mode field diameter are each formed by a spherical or aspherical fiber end of an optical fiber,

the coupling and/or decoupling apertures with the larger mode field diameter are each formed by an optical fiber end provided with a lens element,

the optical spectrometer further comprising one single optical input which can be connected to one of the coupling apertures via an optical switch, wherein at least the decoupling aperture with the larger mode field diameter is associated with an optical output, wherein the decoupling aperture with the smaller mode field diameter is associated with a detector.

12. The optical spectrometer according to claim 2, wherein:

the coupling and decoupling apertures with the smaller mode field diameter are each formed by the fiber end of a SingleMode standard fiber,

wherein the coupling and/or decoupling apertures with the larger mode field diameter are formed each by the fiber end of an optical fiber having a widened core diameter at the fiber end compared to a SingleMode standard fiber, in particular by the fiber end of a TEC fiber,

the coupling and/or decoupling apertures with the larger mode field diameter are each formed by a spherical or aspherical fiber end of an optical fiber,

the coupling and/or decoupling apertures with the larger mode field diameter are each formed by an optical fiber end provided with a lens element,

each coupling aperture is associated with its own optical input,

at least the decoupling aperture with the larger mode field diameter is associated with an optical output, and

the decoupling aperture with the smaller mode field diameter is associated with a detector.

13. An optical spectrometer comprising:

a first coupling aperture having a first core diameter;

a second coupling aperture having a second core diameter that is larger than the first core diameter;

a dispersion device arranged to disperse light beams coming from the first and second coupling apertures;

a first decoupling aperture operable to receive the light beam coming through the dispersion device from the first coupling aperture; and

a second decoupling aperture operable to receive the light beam coming through the dispersion device from the second coupling aperture.

14. The optical spectrometer according to claim 13, wherein the core diameters of the first and second decoupling apertures correspond to the core diameters of the respective first and second coupling apertures.

15. The optical spectrometer according to claim 13, further comprising:

a first optical fiber having the first core diameter, the first coupling aperture being defined by one end of the first optical fiber; and

a second optical fiber having the first core diameter, the second coupling aperture being defined by one end of the second optical fiber;

wherein the one end of the second optical fiber has a widened core diameter.

16. The optical spectrometer according to claim 13, wherein the second coupling aperture is defined by a spherical or aspherical end of an optical fiber.

17. The optical spectrometer according to claim 13, further comprising:

an optical fiber having a first core diameter, wherein the second coupling aperture is defined by one end of the optical fiber and the one end has a widened core diameter which is larger than the first core diameter; and

a lens element disposed in a light path between the second coupling aperture and the dispersion device.

18. The optical spectrometer according to claim 13, further comprising an optical switch that receives a single light beam and switches the received light beam between the first coupling aperture and the second coupling aperture.

19. The optical spectrometer according to claim 13, wherein both the first and second coupling apertures receive the same single light beam and the dispersion device includes a single diffraction grating that receives the light beams coming from both the first and second coupling apertures.